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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/710,261  | 06/29/2004  | Souichi MORIYA       | Q82380              | 4260             |
| 23373   | 7590        | 10/18/2005           | EXAMINER            |                  |
| SUGHRUE MION, PLLC<br>2100 PENNSYLVANIA AVENUE, N.W.<br>SUITE 800<br>WASHINGTON, DC 20037 |             |                      | DO, AN H            |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2853                |                  |

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/710,261

Applicant(s)

MORIYA ET AL.

Examiner

An H. Do

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

The Amendment filed on 06 October 2005 has been acknowledged.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyata et al (EP 0 985 535 A2) in view of Ide et al (W099/09647).

Miyata et al discloses all basic features of claimed invention as follows:

A liquid-jet head including a passage-forming substrate (10) in which a pressure generating chamber (12) communicating with a nozzle orifice (15) ejecting a liquid is defined and a piezoelectric element composed of a lower electrode (60), a piezoelectric layer (70) and an upper electrode (80) on one surface of the passage-forming substrate (10) with a vibration plate (50) interposed therebetween, the liquid-jet head comprising:

-A sealing plate (20) joined towards a piezoelectric element side of the passage-forming substrate (10) and having a piezoelectric element holding portion (24), the sealing plate (20) hermetically sealing a space secured in a region facing to the piezoelectric element in such away that it does not hinder a movement thereof (Figure 1 clearly illustrates piece by piece);

wherein at least a part of a peripheral portion of the piezoelectric element holding portion (24) of the sealing plate (20) is joined to the passage-forming substrate (column 13, lines 5-10).

Miyata et al disclose the claimed invention except for reciting the aforementioned joining between the sealing plate and the substrate is by way of the joining layer made of glass.

Ide et al teach the joining between a sealing plate (5) and a substrate (2) is by way of a joining layer (6) made of glass (Abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to join the aforementioned features of Miyata et al by way of a joining layer made of glass as taught by Ide et al for the purpose of providing an airtight vessel so that the piezoelectric elements within can be protected.

3. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyata et al (EP 0 985 535 A2) in view of Ide et al (W099/09647) as applied to claim 1 above, and further in view of Dekker et al (US 6,104,081).

Miyata et al as modified by Ide et al disclose the claimed invention except for reciting the aforementioned phosphorous glass for trapping moisture.

Dekker et al teach phosphorous glass layer (sub-layer 22) is formed for trapping moisture (column 5, lines 3-8).

It would have been further obvious to one having ordinary skill in the art at the time the invention was made to join the aforementioned features of Miyata et al as

modified by Ide et al by way of phosphorous glass layer as taught by Dekker et al for the purpose of preventing the moisture.

4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyata et al (EP 0 985 535 A2) in view of Ide et al (W099/09647) as applied to claim 1 above, and further in view of Blackwell et al (US 6,487,879).

Miyata et al as modified by Ide et al disclose the claimed invention except for reciting a filler material selected from group of titania, zirconia and alumina.

Blackwell et al teach a filler material selected from group of titania, zirconia and alumina is used for providing superior strength (column 1, lines 17-24).

It would have been further obvious to one having ordinary skill in the art at the time the invention was made to join the aforementioned features of Miyata et al as modified by Ide et al by way of a filler material selected from group of titania, zirconia and alumina as taught by Blackwell et al for the purpose of providing superior strength.

#### ***Response to Arguments***

5. Applicant's arguments filed 06 October 2005 have been fully considered but they are not persuasive. Applicant argued that the combination of Miyata and Ide did not teach or suggest "the glass joining layer is formed over the inside of a piezoelectric element holding portion of the sealing plate. However, this is not found persuasive because the sealing glass (6) of Ide is formed between a lower case (2) and a lid cover (5) as shown in Figure 1(b), and hence, the sealing glass (6) is considered formed inside of the piezoelectric element holding portion when attached.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

***Contact Information***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to An H. Do whose telephone number is 571-272-2143. The examiner can normally be reached on Monday-Friday (Flexible).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



AD  
October 17, 2005



Stephen D. Meier  
Primary Examiner